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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,696	08/31/2001	Henry J. Simon	1-21526	2210

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EXAMINER	
ROSENBERGER, RICHARD A	
ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/943,696	SIMON ET AL.	
	Examiner	Art Unit	
	Richard A Rosenberger	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5, and 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Finlan (US 4,997,278).

Finlan shows a method of measuring changes in optical properties ("the progress of the reaction", abstract, lies 2 and 3, is a "change") of layered material (the "sample", "sensitive layer", "metal film", and "optically transmissive component" (abstract, lines 3-6) are a "layered material". An incident light wave is directed toward the layered materials under conditions that will produce a propagating surface mode (plasmon resonance) in the layered material. The layered materials inherently have an index of refraction. The intensity distribution within a transverse beam profile of the totally reflected beam is measured (by detector array 18, see column 5, lines 12-14 and figure 5(a)) The index of refraction of the layer

materials is modified by the progressing reaction (column 5, lines 66-67). The intensity variation are "continuously monitored" (column 6, line 41), that is the intensity distribution is measured and re-measured. The reference discusses monitoring the changes as the reaction progresses (column 6, lines 40-42), monitoring the change requires some "comparison of the measured intensity distributions" or no change could be recognized or monitored.

Finlan discusses "tuning the angle" to obtain the desired surface mode (column 6, lines 56-61) [instant claim 2].

The transverse intensity profiled are analyzed so that the smallest changes in the transverse beam profile are detected; in the reference the analysis does not ignore part of the measured data to deliberately reduce the precision of the measurement [instant claim 3].

The detector array measures the transverse beam profiles as a function of transverse beams position; each detector in the array is at some positional point in the transverse beam profile [instant claim 4].

The detector 18 of Finlan is an optical detector [instant claim 5].

The radiation of Finlan is electromagnetic radiation and is introduced in such a way as to excite a surface made at one of the plurality of surfaces comprising the layered materials [instant claim 10].

The layered material comprise a plurality of layers [instant claim 11], and the first layer (the optically transmissive component 16) is a dielectric medium

(glass; see column 4, line 48) [instant claim 12], and the second layer (reflective layer 19) is a metal surface (column 4, lines 46-47) [instant claim 13].

4. Claims 1 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Veen et al.

Van Veen et al shows a method comprising directing an incident wave (from light source 12) toward layered materials (prism 2, metal layer 1, "adjustable selector"). An incident light wave is directed toward the layered materials under conditions that will produce a propagating surface mode (plasmon resonance) in the layered material. The layered materials inherently have an index of refraction. The intensity distribution within a transverse beam profile of the totally reflected beam is measured (by a row of light detectors, see column 5, lines 12-13). The index of refraction of one of the layers is modified, which is why the resonance angle changes. The reference discusses "" determining the shift of the resonant angle due to changes . . . at the metal surface" (column 6, lines 9-11).

Clearly the angle of incidence must be "tuned" to produce the desired surface mode [instant claim 2].

The transverse intensity profiled are analyzed so that the smallest changes in the transverse beam profile are detected; in the reference the analysis does not ignore part of the measured data to deliberately reduce the precision of the measurement [instant claim 3].

The detector array measures the transverse beam profiles as a function of transverse beam position; each detector in the array is at some positional point in the transverse beam profile [instant claim 4].

The detector arrangement of the reference is an optical detector [instant claim 5].

The light beam of the reference is collimated (column 4, lines 66-67) [instant claim 6].

The radiation of Van Veen et al is electromagnetic radiation and is introduced in such a way as to excite a surface made at one of the plurality of surfaces comprising the layered materials [instant claim 10].

The layered material comprise a plurality of layers [instant claim 11], and the first layer (the optically transmissive component 16) is a dielectric medium (glass; see column 7, line 27) [instant claim 12], and the second layer (reflective layer 19) is a metal surface (column 4, lines 12) [instant claim 13].

5. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Veen et al (US 4,889,427).

See above. The reference does not specifically discuss the size of the incident light beam or the size of each groove to be illuminated by the incident light beam for each test. Those in the art could make the groove of any appropriate size, with smaller being better that larger because less of the reactants will be needed for

smaller rather than larger sizes, and would have found it obvious to match the size of the light beam for each test to the size of the groove for each test because light beams outside of the test area, the groove, will not contribute meaningfully to the results.

6. Claims 9 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Finlan et al (4,997,278) or Van Veen et al (US 4,889,427).

See above. Neither reference specifically mentions that the beam profile is measured parallel to the surface of the optical detector, although both illustrates that arrangement. Having the beam strike the detector perpendicularly to the surface of the detector so that the measurement is parallel to the detector, is the most common and obvious arrangement of a light beams and a detector [instant claim 9].

Both reference discuss having a layer of antigen molecules [instant claim 15] to react with a fourth layer of antibody molecules [instant claims 16 and 17], or vice versa; the choice of which is in in the third layer and which is in the fourth is a matter of choice that does not affect the outcome of the test because the reaction will occur is in either case. Proving a "bonding layer" to bond the test layer to the metal layer so it does not wash away during the test would have been obvious.

7. Claims 18-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finlan et al (US 4,997,278) or Van Veen et al (US 4,889,427) is in view of the acknowledged prior art of the instant specification.

See above. The instant specification states that the waveguide mode sensors are known is in the art; see page 8, lines 7-10. Using such a known variant of the type of systems shown by Finlan et al or Van Veen et al with the transverse profile measurement of the beams taught by either those two reference would have been obvious because it is a known arrangement for making these types of known measurements is in a known manner.

8. Papers related to this application may be submitted to Group 2800 by facsimile transmission. The faxing of such papers must conform to the notice published is in the Official Gazette, 1096 OG 30 (15 November 1989). The fax number is (703) 308-7722.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. A. Rosenberger whose telephone number is (703) 308-4804. The examiner's normal work schedule is 8:00 to 4:30 eastern time, Monday through Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

R. A. Rosenberger
27 June 2003

Richard A. Rosenberger
Primary Examiner